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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,368	10/20/2003	Daniel J. Simpson	016026-9297	2856
23510	7590	09/29/2005	EXAMINER	
MICHAEL BEST & FRIEDRICH, LLP ONE SOUTH PINCKNEY STREET P O BOX 1806 MADISON, WI 53701			ANTHONY, JOSEPH DAVID	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,368

Applicant(s)

SIMPSON ET AL.

Examiner

Joseph D. Anthony

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
4a) Of the above claim(s) 14-34 and 42-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 35-41 and 48 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, 35-41, and 48 drawn to methods of isolating target materials, classified in class 435, subclass 174.
 - II. Claims 14-19 and 25-30, drawn to methods of isolating-associated proteins and cells from starting materials, classified in class 435, subclass 177.
 - III. Claims 20-22 and 42-47, drawn to a kit for separating target materials from non-target materials, classified in class 502, subclass 401.
 - IV. Claims 23-24, drawn to a method for reducing metal ions in a fluid, classified in class 210, subclass 1+.
 - V. Claims 31-34, drawn to a method for detecting protein in a starting materials, classified in class 435, subclass 180.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions III and (I, II, IV and V) are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used antifoaming agent.

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3. Inventions (I, II, and IV and V) because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Jill A. Fahrlander on 09/20/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-13, 35-41 and 48. Affirmation of this election must be made by applicant in replying to this Office action. Claim 14-34 and 42-47 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).
are drawn to either recognized divergent processes of use (e.g. IV verses I, II and V), or the processes use recognized divergent method steps (e.g. I verses II), or recognized divergent compositions (e.g. I and II verses IV verses V).

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Drawings

7. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because FIGURES (actually photographs), 2, 3A, 3B, 4, 6, 7, 8,9, 9C, 10, 11, 12, 15, 16A, 17A, 18A, 19, 20, 21, 22, 23A, 23C and 24, filed 04/22/04, are of very poor quality. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bruening et al. U.S. Patent Number 5,250,188.

Bruening et al teach a method is disclosed for the quantitative removal and concentration of desired molecules or ions, such as gases, anions and amino acids, from a source solution which may contain larger concentrations of other molecules. The method comprises bringing the source solution into contact with a solid cation-ligand-matrix consisting of a cation complexed to a ligand molecule covalently bonded to a matrix consisting of an organic spacer bonded to a solid inorganic support through a silicon atom. The cation has an affinity for the desired molecules to form a complex between the desired molecules and the cation portion of the solid cation-ligand-matrix at binding sites initially held by H₂O or other weakly coordinated ligands or via ion pairing. The desired molecule complex is broken releasing either the desired molecules or desired molecules complexed with the cation by contacting the solid cation-ligand-matrix-desired molecule complex with a much smaller volume of a receiving solution in which said desired molecules are soluble. The concentrated ions or molecules thus removed may be analyzed and/or recovered by known methods. The process is useful in measuring the concentrations of molecules originally present at parts per billion levels; in the removal of low levels of toxic molecules such as ammonia or anions such as chromate from potable and saline water; in the preparation of ultrapure salts and gases; and in the recovery of valuable

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molecules present in low concentrations as in the separation of amino acids, etc., see abstract and column 3, line 15 to column 4, line 12. One of the preferred ligands used in said solid cation-ligand-matrix are amino acids, see column 5, line 24-43. The metal cations used in said solid cation-ligand-matrix read on applicant's claimed metal cations, see column 5, lines 44-50.

Applicant's claims are deemed to be anticipated over the disclosure of Bruening et al for the reasons set forth above. Please note that the choice of using applicant's nitrilotriacetic acid (NTA) as the ligands would have been at one envisaged since nitrilotriacetic acid (NTA) are very well known amino acids. In the alternative, it would have been obvious to one having ordinary skill in the art to actually use nitrilotriacetic acid (NTA) as the ligand in Bruening et al's solid cation-ligand-matrix of Formula 1, since nitrilotriacetic acid (NTA) are such well known amino acids. In any case, applicant has set forth no showing of any superior and unobvious results that may result from applicant's solid modified supports that use nitrilotriacetic acid (NTA) ligands in lieu of other amino acid ligand species.

In the alternative Bruening can be said to differ from applicant's claimed invention in that there is no direct teaching (i.e. by way of a specific example) to applicant's specific solid supported silane starting materials. It would have been obvious to one having ordinary skill in the art to use the broad disclosure of the patent as strong motivation to actually make and use silane starting material that read on applicant's claimed silane starting materials.

11. Claims 4-13, 35-41 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruening et al. U.S. Patent Number 5,250,188 optionally in view of anyone of the following: McCulloch et al. U.S. Patent number 6,106,724 or Monforte et al. U.S. Patent Number 5,700,642 or Regnier et al. U.S. Patent Application Publication No: 2003/0037532 A1.

This rejection builds on the rejection made above. Bruening et al has been described above and differs from applicant's claimed invention in that there is not a direct teaching to isolating the specific target materials as claimed by applicant. There is also no direct disclosure to first performing applicant's chelating step of independent claim 10 wherein the target material first chelated with a non-nitrioltriacetic acid/salt containing silane prior to be chelated with the solid support nitrioltriacetic acid/salt containing silane compound or solid support nitrioltriacetic acid/salt containing compound.

All three secondary references directly teach that it is very well known in the art to use non-nitrioltriacetic acid/salt containing silane compounds, that can optionally be supported on a solid support, as chelating agents for proteins, polypeptides, amino acids, affinity tags, and/or nucleic acids, see the abstract of each reference. Also see, column 7, line 48 to column 8, line 19 and column 4, line 26 to column 5, line 67 of McCulloch et al., column 32, lines 8-17 of Monforte et al., and Section [0149] of Regnier et al..

It would have been obvious to one having ordinary skill in the art to use the broad disclosure of Bruening et al. along as motivation to actually chelate applicant's claimed target materials since such target material are deemed to fall with the broad disclosure of the patent. In any case, the combination of anyone of the secondary references with Bruening et al. provides plenty of motivation to one having ordinary skill in the art to use applicant's disclosed starting materials to chelate applicant's claimed target materials. Furthermore, the secondary patents provide plenty of support for applicant's additional method step of independent claim 10.

12. Claims 1-9 and 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Applicant's cited Article entitled: Synthesis of the chelator lipid nitrilotriacetic acid ditetradecylamine (NTA-DTDA) and its use with IAsys biosensor to study receptor-ligand interactions on model membranes, by Altin et al. 2001.

Altin et al teaches chelator lipid nitrilotriacetic acid ditetradecylamine (NTA-DTDA) and its use with IAsys biosensor to study receptor-ligand interactions on model membranes. The said chelator materials are preferably deposited on a solid support such as glass slides (silica) or silicon nitride, see abstract and pages 134-135. These said chelators directly read on applicant's non-silane containing chelator complexing starting materials. Applicant's claimed

methods are deemed to be anticipated over the reference. In the alternative, applicant's claims are deemed to be obvious over the disclosed methods.

13. Claims 10-13, and 35-41 rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's cited Article entitled: Synthesis of the chelator lipid nitrilotriacetic acid ditetradecylamine (NTA-DTDA) and its use with IAsys biosensor to study receptor-ligand interactions on model membranes, by Altin et al. 2001 optionally in view of anyone of the following: McCulloch et al. U.S. Patent number 6,106,724 or Monforte et al. U.S. Patent Number 5,700,642 or Regnier et al. U.S. Patent Application Publication No: 2003/0037532 A1.

This rejection builds on the rejection made above. Altin et al has been described above and differs from applicant's claimed invention in that there is not a direct teaching to isolating the specific target materials as claimed by applicant. There is also no direct disclosure to first performing applicant's chelating step of independent claim 10 wherein the target material first chelated with a non-nitrilotriacetic acid/salt containing silane prior to be chelated with the solid support nitrilotriacetic acid/salt containing silane compound or solid support nitrilotriacetic acid/salt containing compound.

All three secondary references directly teach that it is very well known in the art to use non-nitrilotriacetic acid/salt containing silane compounds, that can optionally be supported on a solid support, as chelating agents for proteins, polypeptides, amino acids, affinity tags, and/or nucleic acids, see the abstract of

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each reference. Also see, column 7, line 48 to column 8, line 19 and column 4, line 26 to column 5, line 67 of McCulloch et al., column 32, lines 8-17 of Monforte et al., and Section [0149] of Regnier et al..

It would have been obvious to one having ordinary skill in the art to use the broad disclosure of Altin et al. along as motivation to actually chelate applicant's claimed target materials since such target material are deemed to fall with the broad disclosure of the reference. In any case, the combination of anyone of the secondary references with Altin et al. provides plenty of motivation to one having ordinary skill in the art to use applicant's disclosed starting materials to chelate applicant's claimed target materials. Furthermore, the secondary patents provide plenty of support for applicant's additional method step of independent claim 10.

Prior-Art Cited But Not Applied

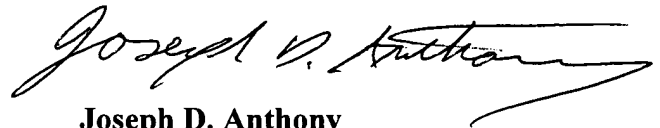
14. Any prior-art reference which is cited on FORM PTO-892 but not applied, is cited only to show the general state of the prior-art at the time of applicant's invention.

Examiner Information

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (571) 272-1117. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The centralized

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FAX machine number is (571) 273-8300. All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner.



Joseph D. Anthony
Primary Patent Examiner
Art Unit 1714

9/23/05